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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/181,021	10/27/1998	YASUO YOSHIOKA	51270-245583	9412

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EXAMINER

ARMSTRONG, ANGELA A

ART UNIT

PAPER NUMBER

2654

DATE MAILED: 05/08/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/181,021

Applicant(s)

YOSHIOKA ET AL.

Examiner

Angela A. Armstrong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 February 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sethares (US Patent No. 5,504,270) in view of Bronson et al (US Patent No. 4,797,926).

3. Regarding claims 1-35 Sethares teaches

analyzer device that analyzes....components in the input voice signal... at Figure 4A, 4B,
col. 4, lines 49-52, col. 5, lines 24-29 and col. 9, line 35 to col. 10, line 57

Fast Fourier Transform analysis at col. 5, lines 24-29 and col. 4, lines 45-52

derive a parameter set of an original frequency and original amplitude... at Figure 4A,
col. 4, lines 49-52, col. 5, lines 24-29 and col. 9, line 35 to col. 10, line 57

sinusoidal wave components and frequency and amplitude coordinates at Figures 4A and
4B and col. 4, lines 49-52

Sethares does not specifically teach that a plurality of frames having spectrum data are created from the input voice signal, and corresponding peak values of the spectrum data in the frames are used to determine the spectral wave components. However, it is well known in the art of signal processing to process frames of a signal by performing a fast Fourier spectrum on the frames and to perform peak picking to determine spectral information. Refer to Bronson et al who describes a signal processing method used in generating synthetic signals that performs the

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fast Fourier Transform for fixed time periods, or frames, and determines the frequencies and amplitudes by doing peak-picking (col. 1, lines 54-62).

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the system of Sethares to implement a peak picking algorithm to process frames of spectrum data to obtain spectral information, as taught by Bronson et al, for the purpose of improving the quality of the generated synthesized signal.

Sethares further discloses

memory means for memorizing pitch information...reference signal... at col. 10, lines 23-30

memory means for memorizing amplitude information....reference signal... at col. 10, lines 23-30

modulating means for modulating frequency ...according to pitch information from memory means... at col. 9, line 35 continuing to col. 10, line 57

modulating means for modulating amplitude...according to amplitude information from memory means... at col. 9, line 35 continuing to col. 10, line 57

mixing means for mixing...to synthesize output voice signal having a pitch or timbre different from that of the input voice signal and influenced by that of the reference signal at col. 6, lines 50-62 and col. 9, line 35 continuing to col. 10, line 57

memory means for memorizing primary pitch information...at col. 10, lines 23-30

secondary pitch information representative of a fractional pitch fluctuating relative to the discrete pitch...at col. 8, lines 18-60

control parameter effective to control a degree of modulation of ...at col. 10, lines 44-51.

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Sethares teaches detecting a pitch of the input signal based on results of extraction... at col. 9, lines 38-52. It is noted that Sethares does not specifically disclose a switch means for outputting an original of the input voice signal in situations in which a pitch is not detected from the input signal. However, it would have been obvious to output an original signal in cases in which a pitch is not detected from the input signal to avoid large fluctuations in the pitch of the signal, for the purpose of providing for smooth transitions as the parameter information is synthesized and reducing the unnaturalness of the synthetic signal.

It is noted that Sethares does not disclose varying the volume of the output signal to... emulate volume variation the reference signal. However, it would have been obvious to modify the system of Sethares and to adjust the volume level of the output signal to match the volume level of the target or reference signal for the purpose of compensating for nonuniformities and unnaturalness that occur due to signal conversion.

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela A. Armstrong whose telephone number is 703-308-6258. The examiner can normally be reached on Monday-Thursday 7:30-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha Banks-Harold can be reached on (703) 305-4379. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

AAA
May 4, 2002


Richmond Dorvil
Primary Examiner